SK361
.A2F4
76

LIBRARY
FISH & WILDLIFE SERVICE
PACIFIC OCEANIC FISHERY
INVESTIGATIONS

United States Department of the Interior
Fish and Wildlife Service

Fishery Leaflet 76

Chicago 54, Ill. * August 1944

THE BLACK BASSES[1/]

The black basses of North American waters belong to the family of fishes known to ichthyologists as Centrarchidae. This family includes the basses, of which four species and five subspecies are now recognized, the crappies, and the smaller forms known generally as sunfishes, bream or sunperch.

The approximate original distribution of the smallmouth black bass (Micropterus dolomieu Lacépède) included the Great Lakes and St. Lawrence system, and the upper Mississippi, Ohio, and Tennessee River systems. This species reached the Hudson Valley after the opening of the Erie Canal about 1825. From there it reached the New England States. The smallmouth bass was first introduced in the Middle Atlantic States by General W. W. Shriver in 1854, when about 30 bass were transported to the Potomac River from the Ohio Drainage of West Virginia, in the water tank of a locomotive. It seeks, by preference, the clear, cool waters of its range, and in the southern States is confined to the more rapid streams or mountainous sections. Its range has been considerably extended by artificial means. The smallmouth is one of the best and most sought of American game fishes, and is probably entitled to first rank in this respect, taking the artificial fly, the baited hook, or the troll in a fashion to thrill even the veteran angler. The general maximum weight is about four pounds and the average is from 1 to 2-1/2 pounds. The record weight for the species is 14 pounds, length 28 inches, girth 21-1/4 inches. It was caught by Walter Harden, February 9, 1932, at Oakland, Florida. The species was originally described by the French naturalist Lacépède in 1803. The generic name micropterus means small-finned, but it is inappropriate as it is based on a specimen which had a mutilated dorsal fin. The specific name dolomieu was given the smallmouth black bass in honor of M. Dolomieu, a French naturalist.

Another species known as the spotted bass, Micropterus punctulatus (Rafinesque), is found in southern Ohio and West Virginia to southern Illinois, southeastern Kansas, eastern Oklahoma, and eastern Texas, and the Mississippi and Tennessee River drainage of Tennessee, Alabama, and Virginia. In the northern part of its range, it prefers rather sluggish streams with muddy bottoms, but farther south the spotted bass is found in the cooler and clearer headwater streams where pools and riffles of

1/ Supersedes BB-11, issued by the former Bureau of Fisheries.

coarse sand and gravel alternate. In coloration, this species is very similar to the largemouth, but the young have a dark bar on the tail, as does the smallmouth. Although intermediate in some respects between the largemouth and smallmouth, it cannot be regarded as a hybrid. The spotted bass is smaller than the smallmouth and largemouth, but has very fine game qualities. The largest specimen reported thus far is a 17-1/2 inch fish weighing 3 pounds 15 ounces, caught in Norris Lake, Tennessee.

The Alabama Spotted Bass is a southern subspecies of the spotted bass, typical examples of which are found chiefly in the Alabama River system in Mississippi, Alabama, and Georgia. It differs from the typical spotted bass in its more elongate form, smaller scales, and larger number of rays in the pectoral fin. Another subspecies, the Wichita Spotted Bass is elongate, very variable in color pattern, and confined to West Cache Creek in the Wichita Mountains of Oklahoma.

The Redeyed Bass, Micropterus coosae Hubbs and Bailey, has only recently (1940) been described as a new species. It is a small, robust bass found in southeastern streams from Alabama to the Savannah River, generally in the uplands. In body form it resembles the smallmouth, but it differs sharply from it in color and anatomical details.

The largemouth black bass (Huro salmoides) is known in various localities as straw bass, green bass, bayou bass, Oswago bass, trout, freshwater trout, chub, and Welshman. Its range is from Canada to the Gulf of Mexico, and from the Atlantic Coast to the Rocky Mountains, and it has been introduced in the Pacific States and into several European countries. The species is prolific in congenial waters, and reaches its greatest weight in the warmer lakes and more sluggish streams of the south. In southern waters it may reach a weight of 15 to 20 pounds. The record fish was taken near Altoona, Florida, and weighed 23-1/8 pounds. In most localities the largemouth does not exceed 6 pounds, and the average weight is probably less than 3 pounds. This is especially true of northern waters, though a few have been recorded from New York lakes weighing fully 10 pounds. "Trout" is the name usually applied to this fish in all the southern States, and it was this fact that led Lacépède to give it the technical name salmoides (that is, like a salmon or trout). This species is the largest and most important member of the family and is the equal of the smallmouth bass as a food fish, but is slightly inferior as a game fish. It inhabits more sluggish waters than the smallmouth and thrives under more extreme conditions of environment and temperature. It is said to enter salt water occasionally.

The principal black basses are frequently confounded, but they have contrasting marks of distinction which vary somewhat with their environment. They may be classified reliably by the number of rows of scales on the cheek, the largemouth possessing 10 and the smallmouth 17 rows. The mouth of the former species usually extends back of the eye, and that of the smallmouth, even with the anterior margin of the eye. The

coloration, especially in the matter of individuals, also distinguishes them. When any body marks at all are distinguishable, those of the smallmouth are in the form of vertical black bars on the side, while the largemouth has a more or less well defined broad longitudinal stripe along the middle of the side and no cross bars. The spotted bass is distinguished by a series of more or less diamond-shaped dark markings on the upper side of a dark line running from center of eye to tail. Larger complete diamond markings stud the body just below and a little in advance of the dorsal fin. Below the dark lateral band, the ground color pales into white; each scale has a distinct dark spot, the upper 5 or 6 rows of which are more or less connected into bands, giving it a resemblance to the belly of the striped bass. No difference in the appearance of the male and female black basses can be detected until just before spawning takes place in the spring, when the abdomen of the female becomes much more distended than that of the male.

After the schools in which the fish remain during the winter are broken up, the male begins the preparation of the nest in the early spring. nest building activities with the smallmouth bass commence when the water approximates 60°F., and the eggs may be deposited at a temperature ranging between 62°F. and 65°F. The nest is located in comparatively shallow water rarely exceeding 3 feet, and usually consists of gravel, brushed into a circular mass 1-1/2 to 2 feet in diameter. When the eggs are deposited, they become attached to the bottom and are thenceforth continually guarded by the male, while the water over the eggs is kept agitated by a gentle motion of the fins. The fish do not pair in the ordinary sense of the word, and after depositing the eggs, the female generally leaves the vicinity. Fish and other intruders are driven away from the nest by the guarding male. From 2,000 to upwards of 10,000 eggs are deposited by one fish, according to size, and the hatching period is from one to three weeks. When the young emerge, they remain in the nest for several days while the food sac is being absorbed. They then rise in a school, and hover over the nest for several days more before scattering. Guardianship by the male fish continues during this period. Finally the young must separate in order to find food, and having been driven among the dense vegetation, or in shoal water for protection, are deserted by their parents.

The food of the young fish consists of minute animals - crustacea, insects, etc. At a very early period, however, they begin to prey upon their smaller brothers and this cannibalism continues after they become adult. The larger fish are very voracious and aggressive feeders, taking all kinds of fish, as well as small mammals, frogs, tadpoles, snakes, worms, and insects.

The longevity of bass has not yet been determined. One lot of smallmouth bass at the experimental station at Leetown, W. Va., is now in its eighth year. Age determinations have been made from bass showing as many as eleven distinct annuli. Both species will grow rapidly with an abundant food supply. Largemouth bass fry stocked in farm ponds may attain a length of 10 inches within a year.

BIBLIOGRAPHY

Davis, H. S. and A. H. Wiebe
1930. Experiments in the culture of the black bass and other pond fish. Bureau of Fisheries, Document No. 1085, Appendix IX, Report of Commissioner of Fisheries, 1930. (Out of print.)

Henshall, James A.
1904. Book of the black bass, 2nd ed. Robert Clark and Co., Cincinnati.

Hubbs, Carl L. and Reeve M. Bailey
1938. The smallmouthed bass, Cranbrook Institute of Schience, Bull. No. 10, 92 p.

1940. A revision of the black basses (Micropterus and Huro) with descriptions of four new forms. Misc. Pub. Museum of Zoology, Univ. of Mich. No. 48, 51 p.

James, M. C.
1929. Propagation of pondfishes. Bureau of Fisheries Document No. 1056. Appendix II, Report Commissioner of Fisheries for 1929.

Reighard, Jacob
1905. The breeding habits, development and propagation of the black bass. Bull. Mich. Fish Comm., No. 7 (from 16th Bien. Rep. St. Bd. Fish. Comm., 1903-04), pp. 1-73.

NOTE: Publications that are out of print may be available for reference in university or public libraries, especially those that are Government Depositories.

Prepared in the Division of Fishery Biology.

HSD "
EWS

August 1944.